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THE INTELLOFAX SYSTEM

In providing a central reference service to CIA and the intelligence community, the early managers recognized the need to develop a machine capability for indexing and retrieving (storing /////// or what was later to become document delivery was not one of the early problems tackled) a staggering quantity of intelligence documentation. The resulting Intellofax System was unique -- no other government agency, no university or library, and no commercial firm had anything of its type in operation.

Its name was coined later by Dr. Andrews to describe the system which combined IBM techniques and facsimile reproduction techniques for the indexing and retrieval of intelligence documents.

The actual authority for establishing the system (not given the name Intellofax until 19--) appeared in an ORE Instruction # 31-47, entitled Functions of the Reference Center, dated 15 July 1947.

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[redacted], Assistant Director of ORE, charged the Central Index and the Intelligence Documents Division (the Library) to (1) "index, by business machine procedures, the subject matter of all available reports, and other documents of a foreign intelligence nature" and (2) classify and catalogue all intelligence documents of a foreign intelligence nature available to CIG."

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[redacted], Chief of Central Index, was given the responsibility for organizing and developing the initial essential steps toward establishing a central indexing and filing system, in conformity with an ICAPS recommendation in March 1947. It soon became apparent that no existing equipment would be capable of meeting the needs envisaged. Although an IBM punch-card offered great flexibility and speed in the handling of thousands of cards, each of which would represent a particular intelligence document, no card would carry enough printed data to supply the researcher with titles and descriptions of documents. In 1947 [redacted] met with top management of [redacted] to discuss the possibilities of the use of standard [redacted] machines and the adoption of these machines to the documentation problem. A [redacted] said that his company would be willing to cooperate with IBM in adapting the Telefax

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machine to automatically reproduce bibliographic and subject abstract data typed on IBM cards onto any type of paper including a duplicating medium and therefore answer the problem of preparing accession lists and lists of abstracts requested.

After numerous meetings with [redacted] and investigation of other 25X1A5a1
25X1A5a companies, such as [redacted], which was interested in developing 25X1A5a1
facsimile methods, the machine experts voted for [redacted] and a contract
29 July 48 Memo from 25X1A5a1
was let in January 1948. By July 1948 [redacted] had produced the first of
25X1A9a [redacted] to AD/OCR the Library Recorders and final design for the IBM card scanner had been completed. Both awaited OCD approval. Experimenting and testing continued and in January 1949 Lear reported favorably on the equipment, commenting that

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"it was indeed gratifying and thrilling to see the first phase of this development actually operating and with such fine quality results. . . it illustrates the all out effort that the people of 25X1A5a1
the [redacted] Company have been and are putting into the job." 2)

Progress reports were prepared periodically throughout the first six months of 1949; test runs were made during June; and the equipment was finally accepted July 1949. The Projects Review Committee on [redacted] and an amendment to the original contract, which 25X1A1a
[redacted] to the total amount of [redacted] 3) 25X1A1a

[redacted] 25X1A5a1

[redacted]ard, or Faxcard, was an IBM punch card of [redacted]ensions which bore on its face up to 200 [redacted]rmation (including the so-called bibliographic country, date, title, possible abstract, [redacted]ity classification) and which at one end bore [redacted]l data (subject and area codes, source locator, date, security information). The cards were sorted, selected, and arranged by standard IBM machines; and the printed information on the selected cards was transmitted and reproduced by facsimile.

The equipment delivered in May 1950 was the second prototype resulting from the developmental engineering begun in January 1948. "Shake-down" tests were still being conducted in mid-1951 concurrent 25X1A9a
with actual usage. [redacted], an Office of Communications (and was 25X1A5a1
employee formerly an engineer with [redacted]) on temporary duty with OCD and placed in charge of the Faxcard equipment. He wrote to [redacted] 25X1A9a (Chief of the Machine Division since September 1950) that since the
25X1A9a Memo from [redacted] to 25X1A9a [redacted] 1 Jun 51 "Faxcard Equipment" (Mach Div 47-55 Box 60-548/1) equipment was not standard equipment, additional development was anticipated before the stability of the equipment could be placed in a class with that afforded by existing teletype machines. 4)

Intellofax 4/3

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At the same time that test runs were being made on the [redacted] [redacted] investigated the potential uses and availability of thermo-printers which would reproduce printed, typed, or written data by a heat process. 25X1A9a

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[redacted] was responsive to OCD's urgent need for this type of equipment and agreed to build and demonstrate a prototype of the machine by July 1949. This was the basis for the first Intellofax tapes printed continuously onto thermofax paper.

Memo from [redacted] to Acting Management Officer and Acting AD/OCD 7 June 49 (Mach Div 47-55 Box 60-548/1)

As of 15 May 1950, the special Faxcard equipment of 6 transmitters and 12 receivers had been delivered to be installed in [redacted] 25X1A6a

Memo from JMA to Chief, Support Staff & Chief, Commo Div. 9 May 50

[redacted]

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The early OCD managers had hoped to electronically transmit the Intellofax tapes to requesters. As of 15 May 1950 6 transmitters and 12 receivers had been delivered to be installed in [redacted] The IBM punched cards were reproduced by Facsimile machines onto tapes which would be fed into the transmitter and electronically sent to the receiver. Experimentation continued throughout the summer months of 1950 but the system was never a success because of too many technical and human problems. Requesters who were originally enthusiastic about receiving bibliographies (Intellofax tapes) right in their office (the forerunner of on-line computer retrieval) later became less than enthusiastic and opted for receiving them from the Library retrieval channels.

The original Intellofax tapes made by the 3-M machines were never completely satisfactory because of the quality of the thermo-fax paper. The paper was thin and tore easily, and the copy was not always legible.

Part of OCD's move [redacted] to the [redacted] necessitated the installation of secure lines for facsimile transmission from the Machine Division to the Reference Branch of the Library which remained in "M" Bldg.

ISC-1

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The Development of the Intelligence Subject Code (ISC)

In conformity with ICAPS* wishes ~~(March 1947)~~, steps were also taken by the Central Index to prepare a unified subject classification scheme. 25X1A9a [redacted] wrote to the Chief, Central Index ~~Branch~~, in July 1947:

> "Although the Reference Branch has taken the initial steps in the direction of establishing central indexing and filing procedures, any unified acceptance of the end product of these investigations will depend upon joint action of IAB and CIG representatives and the agencies final acceptance of the system decided upon." (Machine Div 1947-48 Box 60-548/1) 6

Re/ Center Ly Monthly Status Rpt 28 July-28 Aug 47 (Library 1947-48 58-98/1)

25X1A9a On 14 July 1947 [redacted] entered on duty as Chief of the Classification Unit of the Library Documents Division ~~to develop~~ to work with the Central Index in developing a comprehensive subject classification schedule for CIG. 7

in the G-2 Library in Vienna, for example) was not adequate; the subjects listed in the BID were not sufficiently comprehensive to cover the wide range of subjects in intelligence documents, since it had been devised for Army purposes. The economic, political and scientific sections were woefully weak. It was decided to prepare a list of subjects which would include those contained in the BID, the Navy Monograph Guide, State Department ~~Classification~~, and for scientific subjects, the Voge Classification, prepared and used by the Joint Research and Intelligence Board (JRBD). Visits were made to the parent organizations using these "classification" schemes.

25X1A9a ~~Army and Navy representatives worked on the military subject, trying to eliminate duplication.~~ [redacted] ~~was brought in from JRBD to work with Theodore Wagman and Dorothy Randolph of the Library to help develop the scientific subjects.~~

25X1A9a By [redacted] Classification Unit had completed a general framework of an all-inclusive classification schedule. The major subject categories included: Army, Navy, Air, Economic, Political, Sociological, Scientific, Geographic, and Biographic. On 22 August a familiarization meeting was held with duly appointed representatives of the three services. The participating IAB agencies agreed to develop and/or revise their respective military categories in the BID. To those categories would be added the CIG contribution consisting of the non-military subjects. The War Department was not inclined to change the numbering system of the BID; it was to be used as the nucleus of the new classification system. 8

Intell. Doc. Div. (Ly) Monthly Status Rpt 28 Aug-28 Sept 47 (Library 1947-48 Box 58-98/1)

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Ltr from [redacted]
8 Sept 47
(Box 60-548/1)

[redacted] was not very enthusiastic about the cooperation from the other agencies. He and [redacted] had visited the State Department 25X1A9a Librarian, who welcomed a comprehensive expansion of the Army, Navy, and Air subject classification, but felt that this expansion should be 25X1A9a incopporated into the abridged Dewey. [redacted] stated to [redacted] in 25X1A9a September that experience to date with the rerpesentatives of the IAB agencies had not been too satisfactory, for they seemed to feel that what CIG was trying to do with a new classification would replace the classification which each agency was using. This was, of course, the ultimate aim, but it would not be realized even partially until the Air Force adopted the Intelligence Subject Code in 1954. Each representative took a cosmic view of the fields which were of primary interest to his agency, and argued that the whole structure of intelligence would be imperilled by any devitions from his schemes.

Ref. Center Ly Monthly Status Rpt 28-28 July 1947 (Box 60-548)

So the Library set about continuing with its own scheme.

ISC master copy

The first edition of the Intelligence Subject Code ~~type~~ was dated 15 March 1948.[1] The Preface indicated that the edition was provisional and that the subject headings were intentionally kept rather general so that expansions and revisions could be made as experience required. There was no index to the ~~ISC~~ this first edition ~~of the ISC~~. A biographic ~~or~~ "Who's Who" class which was in the original outline was deliberately omitted because of the Biographic Intelligence Register of the Reference Center. ~~Suggestions, additions, and comments were earnestly solicited.~~ The main classes and the number of notations (codes) were:

000	International Situation	32
100	National Affairs	120
200	Army	139
300	Navy	181
400	Air Force	83
500	Weapons and Scientific Warfare	44
600	Science and Technology	82
700	Geography and Economics	232
800	Social and Cultural Forces	67
	Total	980

Each of the eight categories was broken down to provide, as nearly as possible, for the needs of the agency chiefly concerned-- the Army, Navy and Air sections following closely the patterns developed by the three services for their own use. The other sections had been worked over in detail with the ORE units chiefly concerned.

Chapters 100 through 800 retained their overall subject ~~category~~ outline until the complete revision of the ISC in November 1960. Further chapter sub-divisions appeared throughout 1948, but it was not until ~~the~~ November 1948 ~~,~~ that ~~the full six digit capability of the ISC was used~~. 600 and 700 sections were expanded to the full six-digit capacity A relative index (alphabetical index) was printed at the same time.

Suggestions, additions and comments were earnestly solicited. Analysts of ORE/ORR and OSI played a significant role in the continuous revision process during the first five years, ensuring more effective organization of the information in documents. These analysts pointed out deficiencies in certain subject fields and suggested appropriate changes. Most suggestions benefited and improved the ISC; others reflected only parochial needs of insistent and narrow-in-outlook requesters who raised their subject specialty out of all proportion to the entire scheme. A prime example of the latter type of requester made one section of the ISC look ridiculous: the subject code for Plant Pathology (632.4) was sub-divided into 68 different codes for wheat, rye, barley, oat and miscellaneous crop diseases with the name of the diseases in English followed by the scientific term in Latin.

The 1949 ISC resembled the original 1948 edition only in the 8 major chapter headings. Within each chapter much restructuring took place. A new heading for Communism was added and the 11h section became the most widely used throughout the book. In 1950 at the time the Library decided to catalog books according to the ISC a 900 chapter (Organization of Information) was added.

The history of the ISC from 1948 through 1967 was a history of change and hoped-for improvement. A review of the master copies of the ISC during these years reveals pages of changes. New editions were published in 1954, 1957, 1960, 1962, 1964 and 1967. Changes in subject codes necessitated the preparation of new cards for conversion. The printed information was transferred from the old card to the new card, whereas the codes punched data was converted by machine to the new codes. This was a time consuming process and caused backlogs in the machine Division.

All classification schemes have limitations and the ISC was no exception, particularly since code expansion was limited by the IBM card. As mentioned earlier, the full 6 digit expansion of the 700 chapter went into effect in November 1948. By 1950 it became evident that certain aspects might be uniformly applied to all the commodity subject codes in that chapter. These "actions" were such things as production data; imports-exports; maintenance, repair, replacement and construction; procurement, etc. The library personnel always worked closely with the machine personnel before any thing was adopted.

The slash appeared on the IBM card as an overpunch in columns 1-6 (subject code field).

This important change in the coding scheme eventually extended by 1954 to some other chapters of the book. Prefix modifers as they were called were applied to the military chapters for such aspects as security, vulnerability, sabotage; order of battle; specifications and description (to be combined with equipment codes), etc.

Other coding devices were inaugurated. One of the subject codes-- 115 (Insurgent Groups)-had no further breakdowns. At the request of ORE [redacted] desk the following instruction appeared in the 1949 ISC: The 115 code may be combined with the first 3 digits of any classification number throughout the ISC, e.g, Monetary System of the [redacted] -- 115.773

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in two other instances.

This same method of coding specificity was used ~~for two other codes:~~ 117 ~~(Religious and Ethnic Minorities)~~ and 876 (Foreign Languages~~)~~.

A ~~three digit~~ list of languages, minorities and cultures was prepared (by Andrews specially) and the 3 ~~digit~~ digit identification could be combined with either the 117 code for Minorities or the 876 code for Languages. For example, 25X6A [redacted] minority was coded 119.119 and the [redacted] language was coded 876.119.